SBE Postdoctoral Research Fellowships (SPRF)

PROGRAM SOLICITATION
NSF 16-590

REPLACES DOCUMENT(S):
NSF 14-595

National Science Foundation

Directorate for Social, Behavioral & Economic Sciences
SBE Office of Multidisciplinary Activities

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

November 14, 2016

October 09, 2017

Second Monday in October, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

The FY 2017 SPRF solicitation has the following revisions:

- The two SPRF Research Tracks have been revised. The Interdisciplinary Research in Behavioral and Social Sciences (IBSS) track has been discontinued. The tracks are now entitled, “Fundamental Research in the SBE Sciences" (SPRF-FR) and “Broadening Participation in the SBE Sciences" (SPRF-BP).
- Award Information has been revised. The duration and tenure has been clarified and the fellowship stipend and allowances have been increased. The award is $69,000 annually for a maximum of 24 months and consists of $54,000 for the fellowship stipend and $15,000 for fellowship expenses.
- Eligibility Information has been revised. Fellowships are no longer awarded to institutions but are submitted by and directly made to the fellowship candidate. There are no longer indirect costs.
- Proposal Preparation Instructions have been revised. The content and/ or length of the Project Summary, Project Description, Budget and Budget Justification, and Postdoctoral Mentoring Plan have been revised. Two Reference Letters are now required.
- Awardees will be required to file starting and termination certificates in addition to annual and final reports.
- The Additional Solicitation Specific Review Criteria has been revised to be consistent with the change in research tracks.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

SBE Postdoctoral Research Fellowships (SPRF)

Synopsis of Program:

The Directorate for Social, Behavioral and Economic Sciences (SBE) offers Postdoctoral Research Fellowships to encourage independence early in the Fellow's career through supporting his or her research and training goals. The research and training plan of each fellowship must address important scientific questions within the scope of the SBE Directorate and the specific guidelines in this fellowship solicitation. The SPRF program offers two tracks: (I) Fundamental Research in the SBE Sciences (SPRF-FR) and (II) Broadening Participation in the SBE Sciences (SPRF-BP). See the full text of the solicitation for a detailed description of these tracks.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Josie S. Welkom-Actg Pgm Officer, telephone: (703) 292-7376, email: jwelkom@nsf.gov
- Lisa M. Jackson-Pgm Specialist, telephone: (703) 292-7882, email: lmjackso@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

47.075 --- Social Behavioral and Economic Sciences

Award Information

Anticipated Type of Award: Fellowship

Estimated Number of Awards: 15 to 20

Between 15 to 20 total Fellowship awards will be made each year contingent upon the quality of the applications and availability of funds.

Anticipated Funding Amount: $3,000,000

The maximum anticipated funding amount is approximately $3,000,000 per year contingent upon the quality of applications and availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- NSF SBE Postdoctoral Research Fellowships are awards to individuals; proposals are submitted directly by the fellowship candidate to NSF. Each candidate must identify one sponsoring scientist and host institution (with whom the sponsoring scientist is affiliated) at the time of proposal submission. Candidates may propose to hold the fellowship at:
    - Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the U.S. Such organizations also are referred to as academic institutions.
    - Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

Fellowship candidates must meet all of the following eligibility requirements:

- be a U.S. citizen, national, or legally admitted permanent resident alien of the United States as of the application deadline
- obtained the doctoral degree within 36 months before the application deadline or will obtain the doctoral degree within 10 months after the application deadline
- not already in a full-time tenure-track faculty position
- not have submitted the same research to another NSF postdoctoral research program

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

Each candidate may submit only one fellowship proposal per year.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
    - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
    - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:**

  Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:**

  Not Applicable

- **Other Budgetary Limitations:**

  Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

  November 14, 2016

  October 09, 2017

  Second Monday in October, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

The National Science Foundation offers postdoctoral research fellowships to provide opportunities for recent doctoral graduates to obtain additional training, to gain research experience under the sponsorship of established scientists, and to broaden their scientific horizons beyond their undergraduate and graduate training. Postdoctoral fellowships are further designed to assist new scientists to direct their research efforts across traditional disciplinary lines and to avail themselves of unique research resources, sites, and facilities, including at foreign locations. NSF seeks to promote the participation of scientists from all segments of the scientific community, including those from underrepresented groups, in its research programs and activities; the postdoctoral period is considered to be an important level of professional development in attaining this goal.

The goal of the SBE Postdoctoral Research Fellowship (SPRF) program is to promote fundamental research in the SBE sciences; enhance the participation of underrepresented groups in science and engineering; provide an opportunity for independence and advanced training under the direction of a sponsor; and encourage doctoral-level scientists (who are not yet in full-time positions) to take advantage of the two-year fellowship to prepare for scientific careers in academia, industry or private sector, and government.

II. PROGRAM DESCRIPTION

II.1. Areas of Research: The Directorate for Social, Behavioral and Economic Sciences (SBE) supports research in a broad range of disciplines and in interdisciplinary areas through its Behavioral and Cognitive Sciences (BCS) Division, Social and Economic Sciences (SES) Division, and SBE Office of Multidisciplinary Activities (SMA). The prospective Fellowship Candidate and Sponsoring Scientist (Mentor) should visit the web pages hyperlinked in this section to get detailed information of the research fields/themes/topics supported by the SBE Directorate. **Any research field within the purview of the SBE sciences, as described in the above web sites, would be welcome.**

II.2. Tracks: This SPRF program offers two tracks of Fellowships. For both of these tracks, proposals are encouraged from a wide range of doctoral-level investigators including those from groups that continue to be underrepresented in their field. Some proposals may contain elements of both tracks, in such cases **it is up to the Fellowship Candidate to choose which track to submit his or her proposal**.

Track 1: Fundamental Research in the SBE Sciences (SPRF-FR):

The SPRF-FR track aims to support research that builds fundamental knowledge of human behavior, interaction, social and economic systems, organizations and institutions. The proposal must primarily fall within the purview of the SBE sciences – this includes programs supported through the Division of Behavioral and Cognitive Sciences (BCS), Division of Social and Economic Sciences (SES), and SBE Office of Multidisciplinary Activities (SMA). Specifically, this includes but is not limited to research to develop and advance scientific knowledge on human behavior, human cognition, language, social and organizational behavior and culture as well as research on the interactions between human societies and the physical environment. Interdisciplinary research with a primary SBE focus is also supported. The proposal must be motivated by a compelling research question (within the fields of social, behavioral and economic sciences). To acquire the requisite skills and competencies, a sponsoring scientist within the designated SBE field must be selected so that the postdoctoral research fellow and his or her sponsor will complement each other's expertise. Proposals in the FR track will be evaluated on three general dimensions: first, the degree to which results would enhance theories and/ or methodological approaches in the SBE sciences; second, the strength of the proposed Fellow-Sponsoring Scientist team and host institution; and third, the promise of Fellow's investigation of driving research questions and future career development.

In addition to the scientific research, all proposals for the SPRF-FR track must include a specific section within the Project Description with the heading "**How this fellowship will advance fundamental scientific knowledge in the SBE sciences** ".

Track 2: Broadening Participation in the SBE Sciences (SPRF-BP)

The SPRF-BP track offers fellowships in an effort to increase the diversity of post-doctoral level researchers who participate in NSF programs in the social, behavioral and economic sciences and thereby increase the participation of scientists from underrepresented groups in selected areas of science in the United States. Data from the National Center for Science and Engineering Statistics (2016) has demonstrated that that members of certain ethnic/racial groups (i.e., American Indians or Alaska Natives, Blacks or African-Americans, Hispanics, and Native Hawaiians or Pacific Islanders) in addition to individuals with disabilities are underrepresented in the SBE sciences in the U.S. The problem of underrepresentation in the nation's scientific enterprise has been well-documented and reported in the literature. The goal of the SPRF-BP track is to prepare underrepresented SBE scientists and others who share NSF's diversity goals for positions of scientific leadership in academia, industry, and government. The research and training plan in these applications must fall within the purview of the SBE sciences (see Section II.1 for details) at NSF, including research on the topic of broadening participation (see SBE's Dear Colleague Letter NSF 14-038 for more details on the science of broadening participation). The SPRF program also welcomes proposals on research to develop and advance scientific knowledge on human behavior, human cognition, language, social and organizational behavior and culture as well as research on the interactions between human societies and the physical environment. Interdisciplinary research with a primary SBE focus is also supported. To acquire the requisite skills and competencies a sponsoring scientist within the designated SBE field must be selected so that the postdoctoral research fellow and his or her sponsor will complement each other's expertise. Proposals in the BP track will be evaluated on three general dimensions: first, the degree to which results would enhance theories and/ or methodological approaches in the SBE sciences; second, the strength of the proposed Fellow-Sponsoring Scientist team and host institution; and third, the promise of Fellow's investigation of driving research questions and future career development.

In addition to the scientific research, all proposals for the SPRF-BP track must include a specific section within the Project Description with the heading "**How this fellowship will help broaden or inform efforts to broaden the participation of underrepresented groups in the United States**".

A. Location of Work (Host Institution)

Research and training supported by these fellowships may be conducted at any appropriate U.S. host institution including academic institutions (colleges and universities) and non-profit organizations (independent museums, observatories, research labs, professional societies). Because the objectives of the fellowship include preparing Fellows for scientific careers in academia, industry or private sector, and government, careful consideration should be given to the selection of the sponsoring scientist and host institution.

If a fellowship is offered, the applicant will be requested to provide documentation from the host institution that the Fellow will be affiliated with that institution by the award start date and that the Fellow will be provided with adequate mentoring, space, basic services, needed resources, and supplies. Once an application is submitted, any changes in location or sponsorship of the Fellow must be approved in advance by the cognizant program officer. Any changes in scope, location or sponsorship after an award is made must be entered into the Research.gov "Notifications and Requests" module using the "Change in Scope" or "PI Transfer" options and then approved by NSF.

Note: The "Location of Work" does not constrain the Fellow to spend the entire Fellowship tenure at that location. If required for the project, the Fellow can spend extended periods of time outside of the official location of work; for example, travel to other locations or to foreign countries, as needed for data collection, field research, or collaborative activities, will be allowed. International research activities and collaboration are welcome. Under specific guidelines from NSF's Office of International Science and Engineering (OISE) extra travel and research expenses may be allowed. See http://www.nsf.gov/od/oise/iprffapp.jsp for details.

B. Sponsoring Scientist (Mentor)/co-Sponsors

The Fellow must affiliate with a host institution at all times during the entire tenure of the fellowship and select a sponsoring scientist from that host institution who will provide mentoring and guidance for both the research and training proposed by the applicant. The applicant is responsible for making prior arrangements with the host institution and sponsoring scientist. Regardless of the number of sponsors, the fellowship application requires a single postdoctoral mentoring plan. When more than one sponsor is proposed, one

must be named lead sponsor and information from all sponsors must be integrated into a single postdoctoral mentoring plan. An important basis for judging the suitability of the host institution is the degree to which the postdoctoral mentoring plan describes and offers an appropriate research environment and a well-developed mentoring plan.

III. AWARD INFORMATION

Support may be requested for up to 24 months at a level of $69,000 per year and may be prorated accordingly. A no-cost extension may be requested to extend the Fellowship award in order to complete the goals of the Fellowship, but no supplemental funds will be provided for this purpose. Within the fellowship period, up to two months of the fellowship duration may be used for paid leave, including parental or family leave. The paid leave cannot be used to increase the level of the Fellow's salary support beyond 24 months. NSF enables career-life balance through a variety of mechanisms. For more information, please see http://www.nsf.gov/career-life-balance/.

Those applicants selected to receive fellowships will be contacted by NSF and asked to provide additional information, such as completing acceptance forms and starting certificates, before starting their fellowship tenure. Successful applicants who have not completed the PhD at the time of the application must provide certification of the completion of all PhD degree requirements before receiving funds from their fellowship award. Fellowship tenure begins on the first of the month only and may commence at the Fellow's request between June and September of the award year. Fellowships may not be renewed.

Budget: The fellowship budget should include the following:

The annual fellowship amount of $69,000 consists of two types of payments, a stipend and a research and training allowance:

1. An annual stipend of $54,000, paid directly to the Fellow in monthly installments of $4,500.
2. An annual research and training allowance of $15,000, paid directly to the Fellow and intended to cover the costs of the Fellowship, including:
    - Expenses directly related to the conduct of the proposed research and education activities, including but not limited to materials and supplies, equipment, computing resources, access to databases, travel, publication charges, and subscription fees
    - Expenses in support of the Fellow, such as office space, general purpose supplies and use of equipment, facilities, and other institutional resources.
    - Expenses in support of fringe benefits, including but not limited to individual or family health insurance provided through a group or individual plan, dental and/ or vision insurance, retirement savings, dependent care, and moving expenses.

Fellowships may be supplemented by host scientists and institutions with non-Federal funds but only if the additional funds do not carry additional responsibilities beyond the research and training supported by the fellowship.

Additional travel expenses of up to $10,000 may be requested if the Fellowship project includes an international component. See http://www.nsf.gov/od/oise/iprffapp.jsp for details.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- NSF SBE Postdoctoral Research Fellowships are awards to individuals; proposals are submitted directly by the fellowship candidate to NSF. Each candidate must identify one sponsoring scientist and host institution (with whom the sponsoring scientist is affiliated) at the time of proposal submission. Candidates may propose to hold the fellowship at:
    - Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the U.S. Such organizations also are referred to as academic institutions.
    - Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

Fellowship candidates must meet all of the following eligibility requirements:

- be a U.S. citizen, national, or legally admitted permanent resident alien of the United States as of the application deadline
- obtained the doctoral degree within 36 months before the application deadline or will obtain the doctoral degree within 10 months after the application deadline
- not already in a full-time tenure-track faculty position
- not have submitted the same research to another NSF postdoctoral research program

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

Each candidate may submit only one fellowship proposal per year.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

See Chapter II.C.2 of the GPG for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions.

Proposals submitted to the SBE Postdoctoral Research Fellowships program must be submitted electronically through either the NSF FastLane system or Grants.gov. Only one proposal is permitted per individual. A full proposal consists of many parts and requires input from the fellowship candidate, a biographical sketch from the proposed sponsoring scientist(s), and 2 reference letters (one from the doctoral thesis/ dissertation advisor). Candidates are advised to begin the proposal well in advance of the submission deadline and to submit as early as possible. Partially completed proposals may be saved for future completion and submission. Incomplete proposals will be returned without review.

Before starting proposal preparation, the applicant must be registered as an individual. To register as a new individual in FastLane go to: https://www.fastlane.nsf.gov/cgi-bin/N1CheckROB. To register as a new individual in Grants.gov go to: http://www.grants.gov/web/grants/applicants/individual-registration.html.

Fellowship proposals must be submitted by the Fellowship applicant, not by the applicant's current or proposed organizational Sponsored Projects Office (SPO). The applicant serves as his/her own SPO and Authorized Organizational Representative (AOR) for the purposes of any research administration functions in FastLane or Grants.gov.

Proposals must include all of the following items. *In cases where requirements given in this document differ from those given in the NSF Grant Proposal Guide (GPG) or the NSF Grants.gov Application Guide, this solicitation takes precedence.* All page limits include pictures, figures, tables, graphics, etc. Applicants are urged to take special care to strictly adhere to page limitations. Proposals that do not conform to the requirements will not be accepted or will be returned without review.

- NSF Cover Page
- Table of Contents - This form will be automatically generated by FastLane or Grants.gov.
- Project Summary - Abstract of fellowship activities, no more than one (1) page. The Project Summary must include an overview and separate statements on intellectual merit and broader impacts. The research plans and goals should be described in the section on intellectual merit; training, career development, and educational or public outreach should be described in the section on broader impacts. The overview section must include the following information,
    - Fellowship Candidate's name and citizenship (as of the application deadline);
    - Date of Doctoral degree (obtained or expected);
    - Sponsoring Scientist's name and title;
    - The proposed host institution;
    - Basic disciplinary field(s) involved in the project
- Project Description (Research and Training Plan) - not to exceed thirteen (13) single-spaced pages, which must include the following information:
    - A coherent plan for research and education, articulated to a level of detail suitable to an NSF grant proposal, which includes sections on Intellectual Merit and Broader Impacts;
    - A detailed justification for the choice of the host institution that identifies collaborating scientist(s) and educational mentor(s), relates the proposed work to current research and educational efforts at the host institution, and describes available facilities and resources and the suitability of the host institution;
    - A description of the candidate's long-term career goals and the role of this postdoctoral fellowship in achieving them;
    - See below for additional guidance
- References Cited - See the Grant Proposal Guide for format (no page limit).
- Biographical Sketch - See the Grant Proposal Guide for format. The biographical sketch is not to exceed two (2) pages for each person (Fellowship Candidate, Sponsoring Scientist, and co- Mentors, if any). The Fellow's Biographical Sketch must clearly include all information necessary to certify the candidate's eligibility, including identification of U.S. citizenship or permanent resident status, as well as all components described in the Grant Proposal Guide. Each Sponsoring Scientist's Biographical Sketch must include a statement of current and pending research support, both private and public.
- Budget and Budget Justification - The stipend and fellowship allowance should be entered in Participant Support Costs (Section F on the FastLane budget and Field E on the Grants.gov budget). Enter the $54,000 stipend in F.1 (FastLane) or E.2 (Grants.gov) and the $15,000 fellowship allowance in F.4 (FastLane) or E.5 (Grants.gov). Enter (1) as the Total Number of Participants. An annual budget page must be submitted for each of up to two years of fellowship support.
- Current and Pending Support - Include current and planned applications to other fellowship programs.

Facilities, Equipment and Other Resources - See the Grant Proposal Guide
- Supplementary Documentation - Must include the following:
    - Dissertation Abstract - not to exceed one (1) page, must describe the Fellow's dissertation research;
    - Postdoctoral Mentoring Plan - not to exceed three (3) pages, must clearly present the Sponsoring Scientist's planned mentoring activities for the Fellow (see below for additional guidance);
    - Data Management Plan - not to exceed two (2) pages, must describe plans for data management and sharing of the products of research, or asserts the absence of the need for such plans. See the Grant Proposal Guide and https://www.nsf.gov/sbe/SBE_DataMgmtPlanPolicy.pdf
    - Two Letters of Reference - the application must also include two references of which one should be the dissertation advisor. Do **not** use the sponsoring scientist as a reference.

Guidance on the Project Description (Research and Training Plan):

The research and training plan presents the research that the Fellow will conduct and the training that he or she will receive during the fellowship period and how they relate to the stated career goals. Part I - the Research Plan (up to 10 pages) should include: a) a theoretically-grounded introduction or background section; b) a statement of research objectives, methods, and significance; and c) a specific section describing either the Fundamental Research or Broadening Participation nature of the project, as appropriate for Track I or II (see Section II.1 and II.2 of this document for details). As with all NSF proposals, in addition to intellectual merit, broader impacts must also be addressed in this section. Part II - the Training Plan (up to 3 pages) should include: a) training objectives and the plan for achieving them (these may include scientific as well as other career preparation activities); b) an explanation of how the fellowship activities will enhance the Fellow's career development and future research directions; c) a justification of the choice of sponsoring scientist and host institution; and d) a timetable with yearly goals with benchmarks for major anticipated outcomes.

Limited amounts of teaching activity (no more than one course at a time) may be incorporated into the proposal, if such teaching experience is valuable for the Fellow's future career development. In such cases the Postdoctoral Mentoring Plan must include the motivation and justification for this teaching plan.

Some applications may require other documentation before the final decision can be made. Fellowship Candidates whose research involves human subjects or vertebrate animals must be aware of the regulations and guidelines pertaining to these types of research. Successful Fellowship Candidates must provide NSF with documentation that the research has been reviewed and approved by the appropriate institutional committees, giving assurance of compliance with all Federal policies on research using humans and the care and use of animals. These requirements are relevant to both laboratory and field projects. Acknowledgement of human subjects or use of animals in the research should be noted on the Cover Sheet. Documentation of approval for use of human subjects or vertebrate animal must be provided prior to the award. See the Grant Proposal Guide for additional information.

Special certifications and permits must be provided when projects involve collecting data/ samples in foreign countries, endangered species, or hazardous materials. Some applications may require other documentation before the final decision can be made, e.g., government permits, letters of collaboration, and commitments from private sources. If a fellowship is offered, the applicant will be requested to provide documentation from the host institution (see Section II.B). Fellowship Candidates must submit the information when requested by the NSF Program Officer managing the program.

Guidance on the Postdoctoral Mentoring Plan:

The postdoctoral mentoring plan is meant to demonstrate how the proposed sponsor(s) and host institution provide the best environment for the Fellow's proposed research and training plan and form the basis for a future independent research career. Therefore, it should include a specific mentoring plan, a description of how the Fellow's independence will be nurtured, and what aspects of the project, if any, cannot go when the Fellow leaves. Regardless of the number of sponsors, one integrated statement must be developed and submitted. If the Fellow plans to teach as part of career development activities, the Fellow is limited to teaching in a course directly related to the Fellow's doctoral or fellowship area of research. The postdoctoral mentoring plan must detail the mentoring that the Fellow will receive on teaching if applicable. Sponsors are not expected to provide all the mentoring themselves and may call on all resources available on campus or through other organizations, *e.g.*, professional societies, postdoctoral offices, etc.

A complete postdoctoral mentoring plan consists of the following items:

- A brief description of the research projects in the host research group(s). If any sponsor has submitted similar research for funding, the degree of overlap must be addressed.
- A description of how the research and training plan for the applicant would fit into and complement ongoing research of the sponsor(s) as well as an indication of the personnel with whom the Fellow would work.
- An explanation of how the sponsor(s) will determine what mentoring the applicant needs in research, teaching, and career development skills and how these would be translated into a specific plan that fosters the development of the applicant's future independent research career.
- A description of the role the sponsor(s) will play in the proposed research and training and the other resources that will be available to the Fellow to complete his or her training plan during the fellowship.
- A description of the limitations, if any, that will be placed on the Fellow regarding the research following the fellowship.

Proposal-submission Check List

This checklist is provided to aid in the preparation of the proposal, the burden to ensure that the proposal is complete and meets all of the solicitation requirements remains with the applicant. Proposers are reminded to identify the NSF publication number (located on the first page of this document) in the program solicitation block on the NSF Cover Sheet for Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- NSF Cover Page
- Project Summary with an overview including the required information and separate sections for both intellectual merit and broader impacts (1 page)
- Project Description (13 pages)
- References
- Biographical Sketches for the Fellow and Sponsoring Scientist(s) (2 pages each)
- Applicant's Current and Pending Support
- Abstract of Dissertation Research (1 page)
- Postdoctoral Mentoring Plan (3 pages)
- Data Management Plan (2 pages)
- Two Letters of Reference

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

The award amount is set for postdoctoral fellowships based on the duration of the award.

Budget Preparation Instructions:

The award amount is based on the award duration and may be prorated accordingly. The stipend and fellowship allowance should be entered in Participant Support Costs (Section F on the FastLane budget and Field E on the Grants.gov budget). Enter the stipend ($54,000 annually) in F.1 (FastLane) or E.2 (Grants.gov) and the fellowship allowance ($15,000 annually) in F.4 (FastLane) or E.5 (Grants.gov). Enter (1) as the Total Number of Participants. An annual budget page must be submitted for each of up to two years of fellowship support. While no salary support will be provided for the Sponsoring Scientist, he or she should be listed as the co-PI on the Cover sheet of the proposal.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

  November 14, 2016

  October 09, 2017

  Second Monday in October, Annually Thereafter

D. FastLane / Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
    a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
    b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific

knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

SBE Postdoctoral Research Fellowship proposals will be reviewed by a panel of disciplinary and interdisciplinary experts as appropriate, spanning all areas of SBE sciences. Ad-hoc reviews may also be sought if deemed necessary. In addition to the regular NSF review criteria, reviewers/panelists will also consider the following criteria for Fellowship proposals:

- Is the Sponsoring Scientist and host institution a good match to the Fellowship Candidate's proposed project, and does the Sponsoring Scientist's involvement in the project strike the right balance between supervisory guidance and the Fellow's independent growth?
- How well-developed are the Postdoctoral Mentoring Plan and the Data Management Plan?
- For Track I (FR) and Track II (BP): How significant is the potential contribution of this research on the SBE sciences, in general, and the specific discipline area(s) identified by this proposal?
- For Track II (BP): How do the proposed activities help broaden (directly, indirectly, or both; via the research, or training and outreach activities, or both) or inform efforts to broaden the participation and advancement of underrepresented groups in the SBE sciences or, in general, STEM fields, in the U.S.?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by

Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process).

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

The fellowship award is made to the individual, not the institution and payments are made directly to the Fellow. Awards cannot be extended without prior NSF approval. Pre-award costs are not permitted.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Josie S. Welkom-Actg Pgm Officer, telephone: (703) 292-7376, email: jwelkom@nsf.gov
- Lisa M. Jackson-Pgm Specialist, telephone: (703) 292-7882, email: lmjackso@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950,

as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0023. Public reporting burden for this collection of information is estimated to average 12 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Office of the General Counsel
National Science Foundation
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